Sprague

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October 19, 2012

Ms. Elizabeth Kudarauskas
U.S. Environmental Protection Agency Region 1
5 Post Office Square, Suite 100
Mail Code OES-04-2
Boston, MA 02109-3912

Re: Testing Order for Information Under Section 114 of the Clean Air Act, 42 U.S.C. § 7414(a); Sprague Operating Resources LLC

Dear Beth:

Sprague Operating Resources LLC ("Sprague") received a Testing Order ("Order") on September 27, 2011 from US Environmental Protection Agency ("EPA") requiring Sprague to monitor and sample the headspace of a tank containing #6 oil and a tank containing asphalt for VOC and HAP content, and to monitor and sample related loading operations at a Sprague location in EPA Region 1 – New England. Enclosed are materials related to #6 oil system testing in Sprague's Searsport, Maine terminal including:

1. Report related to the work associated with VOC and HAP emissions testing and
2. Physical product sampling for vapor pressure.

Since December 2010, Sprague received two Reporting Requirements and two Testing Orders from EPA related to the investigation of VOC and HAP emissions from #6 oil and asphalt. Additionally, EPA has conducted site visits at all Sprague terminals in Region 1, including multiple site visits at some of the terminals. Sprague has complied with all aspects of the EPA Orders to date and has cooperated fully with EPA through these matters. Sprague remains committed to maintaining compliance with all environmental requirements including the Clean Air Act (CAA), and believes that has been the case with the #6 oil and asphalt matters at hand.

Testing Background

Sprague interviewed a number of air experts to develop a protocol to measure actual tank breathing, as emissions testing of static petroleum tanks has no precedent nor approved methodology in the industry. Sprague ultimately retained Eastmount Environmental Services ("Eastmount"), who specializes in stack and air emissions testing, to develop a procedure that could measure VOC and HAP emissions from petroleum storage tanks.

Eastmount identified some fundamental difficulties in measuring passive tank breathing flow rates. Eastmount identified as a challenge the ability to accurately measure air flow rates without either artificially impeding or accelerating the emissions. In an attempt to overcome these difficulties, Eastmount designed an approach that they felt best replicated actual field conditions and normal tank breathing, without creating an artificial flow rate that could potentially upwardly bias the emissions results. EPA rejected Eastmount's original sampling design proposal and instead required a temporary total enclosure (TTE) be constructed that meets the requirements of EPA Method 204. Per EPA's direction, Sprague proceeded to fabricate and install two metal enclosures on Tank #3 at the Searsport, Maine terminal as described in Eastmount's October 19, 2012 report.

EPA required all testing to be conducted around a vessel transfer. Therefore, Sprague commenced #6 oil testing following EPA's final test protocol approval, one week in advance of the next #6 oil vessel arrival. While the Order also required sampling for VOC and HAP of an asphalt tank, inclusive of a vessel transfer, Sprague has not received an asphalt vessel since early in 2012, and does not expect one until late 2012 or early 2013. Therefore, this report provides the results only for #6 oil testing. Physical product sampling for vapor pressure is also included as a second enclosure to this letter.

Testing Results

Eastmount's enclosed report provides all information required from Section B of the Order. The report shows that based on the field emissions testing prescribed by EPA, Sprague's total VOC emissions for tank breathing during static operation, vessel transfer activities, and truck transfer combined, were not in excess of 26.6 tons/year over the past five years. HAP levels were much lower and not in excess of 4.2 tons/year of total HAPs. Both these peak levels occurred in 2007, and have decreased measurably over time with the decline in #6 oil volumes. These annual figures, though, are based on extrapolation of 30 days of data, in a process that excessively oversamples the emissions.

In the Discussion section of their report, Eastmount identified inherent shortcomings of the test methodology and the likelihood that the TTE approach, along with the fan device, as required by EPA, could in fact be artificially inducing emissions causing an overstatement of actual emissions. Because of the need to keep a slight vacuum on the enclosure system, Eastmount had to overcompensate with an increased fan speed. When simply comparing the calculated rates of emissions between static tank breathing to emissions during vessel transfer at 3,553 barrels/hour, it is striking that normal static breathing would be only 1/5 the rate of the rapid displacement of vapors during vessel transfer.

Although not required by EPA, Eastmount conducted an alternate experiment by constructing a direct pitot flow meter that was unable to detect flow. Although this rudimentary experiment was not in exact conformance to a promulgated EPA method, it did serve as a useful screening exercise. Based on this approach, Eastmount believes that an upper limit could be established as reference by applying the minimum detection level as the absolute flow rate and calculate

emissions from that base line. This resulted in a maximum VOC emission rate of 4.4 tons/year, and while is not the absolute level, is indicative of the emissions if the flow rate were at the detection rate of the equipment. This maximum result is greater than ½ that produced from the Method 204 system.

EPA TANKS Model and AP 42 Emission Factors

Sprague has employed the TANKS model in most, if not all, of its past emissions reporting for federal and state requirements. In fact, Sprague's South Portland, Maine state air permit (Section 21.A.6) calls for tank emissions to be "calculated using EPA TANKS program", which is an example of how EPA's model has informed states as to how their facilities should estimate emissions. EPA's website references the EPA TANKS Model, specifically 4.0.9d, "which relies on emissions factors from AP 42." We have learned that it is these #6 oil factors that are currently under scrutiny by EPA and other large industry players, such as those who are members of the American Petroleum Institute (API). We also understand that refiners, who make up API membership, operate under significantly different operating conditions which include higher temperatures and selective blending, conditions not present in Sprague's bulk terminals. Thus, Sprague believes that approaches used to estimate emissions from refinery tanks are not necessarily appropriate for use in estimating emissions from #6 oil storage terminal tanks.

In discussions with EPA through this Order, EPA informed us that TANKS 4.0.9d does not allow for temperatures or vapor pressures in excess of 100°F for estimating emissions and simply defaults to 100°F to determine emissions results. Sprague's #6 oil is heated in order to reduce the viscosity and allow the product to flow, with temperature ranging from 120°F to 130°F. It is understandable that the TANKS algorithm would understate the emissions when the true product temperatures average 20 – 30 °F higher than the TANKS default. In addition, Sprague's storage temperatures can run significantly lower than those encountered in the refining environment, which are estimated at 200°F+.

The science of estimating #6 oil emissions has up until now been a theoretical approach. Because of EPA Region 1's activities, the bulk storage industry is becoming aware of the inconsistencies with TANKS and the #6 oil operating conditions, and like Sprague, is eager to find a better approach at estimating emissions. Sprague is now challenged with either continuing our use of TANKS, developing a better theoretical model that provides for more realistic temperature and vapor pressure inputs, or utilizing some form of the results generated from the testing recently conducted at our Searsport terminal. The industry nationally faces the same dilemma, with potentially much greater significance at the much larger facilities in other parts of the country.

The approach that was followed to test #6 oil VOC emissions at Searsport had some fundamental issues that are identified in the attached report that undermine the credibility of the results. Sprague believes that the results provided in the report overstate the true conditions. Because of the complexity of this issue and the importance to the industry nationally, a more scientific research avenue such as Research Triangle Park or the National Academy of Science should be considered.

Asphalt Testing

We understand asphalt testing at another Region 1 terminal has been conducted in a similar fashion and design to this #6 oil testing, yet experienced significant trouble due to oil misting and control issues. Nonetheless, results from the asphalt testing show a lower level of VOC and HAP than the #6 oil test. With the bias (higher emissions) of these field tests and the struggle to obtain accurate results in light of the misting and control, our concern is that we are heading back into an unproductive testing program.

Therefore, Sprague respectfully requests that EPA suspend the requirement to conduct this testing on the asphalt system until a proven and reliable test method can be identified. Additionally, we would like to meet with you and others in your group to have a technical discussion of these results and the test methods. We look forward to discussing this matter at your earliest convenience.

Regards,

SPRAGUE OPERATING RESOURCES LLC

Elizabeth Hernberg

Elizabeth Hernberg
Managing Director, HSE

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Fast To The Point

Saybolt LP

Certificate of Analysis

Client:	SPRAGUE ENERGY		
Report Date:	7/25/2012	Date Sampled:	7/19/2012
Job No:	13032-0004141	Product:	#6 F/O
Lab Number:	2012070144-01	Sample ID:	TK# 3
Client Ref:	N/A	Location:	SEC

Test	Method	Result	Units
Reid Vapor Pressure	ASTM D-323	0.55	psi
Vapor Pressure by Isoteniscope	ASTM D- 2879*	----	Torr
at temperature:			
32°F		0.2	
68°F		0.43	
100°F		0.96	
150°F		3.0	
200°F		6.2	
250°F		18	
300°F		37	
350°F		70	
375°F		94	
378°F		100	
400°F		165	
450°F		200	
480°F		260	
500°F		310	
525°F		380	
550°F		470	
600°F		680	
625°F		760	
670°F		----	
650°F		----	

*Analysis results are submitted by a third party laboratory. Saybolt was not present whilst the analysis was carried out, and has signed for receipt only with no liability accepted.

Approved By:

Tara Klein
Assistant Laboratory Manager

"Precision parameters apply in the evaluation of the test results specified above. Please also refer to ASTM D3244 (except for analysis of RFG) and IP 367 with respect to the utilization of the test data to determine conformance with specifications."